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ABSTRACT

This review of recent empirical research on the effects of television on children and teenagers begins by examining the results of two surveys which were conducted to determine the opinions of experts in the field. A brief statement of the findings indicates that experts generally agree that television harms formal scholastic achievement while providing general knowledge; that it has contributed to misperceptions about sex roles, ethnic groups, and politics; that it has increased aggressive behavior; and that it has increased the degree to which children behave as consumers. Empirical evidence is then examined to determine whether or not this evidence supports what the experts say. Seven areas are considered: (1) time use (the time children spend watching television); (2) the viewing experience; (3) knowledge, beliefs, and perceptions (defined as a wide range of cognitions that television may influence among children and teenagers); (4) viewing's impact on violence and sex roles; (5) scholastic achievement; (6) advertising; and (7) behavior (the physical actions and sequences of physical action that arguably could be said to be influenced by television). It is noted that there is a large, if varied, body of empirical evidence now available on this topic which variously supports, qualifies, calls into question, or has little to say about the opinions of the experts. On the whole, it is concluded that, although the research to date is highly informative in many respects, it is only moderately informative about the accuracy of the experts. (There are 249 references.) (EW)

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TELEVISION AND CHILDREN: A REVIEW OF RECENT RESEARCH

George Comstock
and
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INTRODUCTION

Television was introduced into U.S. households on a widespread basis in the late 1940s and early 1950s. Since then, a truly massive quantity of empirical studies concerning television and children has accumulated, with a sizable portion having been published within the past decade and a half. The near-exhaustive bibliography, *Television and Youth* (Murray, 1980), contains 2,886 citations, with 60% appearing between 1975 and 1980. By comparison, a bibliography produced 10 years earlier (Atkin, Murray, & Nayman, 1971) contained only about 550 citations, and another appearing in mid-decade (Comstock & Fisher, 1975) contained about 1,100. This recent growth in research on television and children has had three significant consequences:

- A substantial body of evidence exists from which to draw.
- Questions once addressed by a single study or by a few studies now often are addressed by many more studies.
- Many topics previously unaddressed now have received attention—in some cases, substantial.

These three circumstances arguably define real progress in scientific investigation. They increase markedly the likelihood that meaningful interpretations can be drawn from the data collected; they may strengthen the confidence with which interpretations are offered, and, in some instances, the ability to offer interpretations at all.

WHAT THE EXPERTS SAY

One way of creating knowledge is to survey experts. The results may be construed in at least two distinct ways. They may be taken as valid advice—that is, as the synthesis of the benefits of training, experience, and recognized knowledgeability in answering a question. Or, they may be taken as no more than the documentation of informed conventional wisdom. In collecting expert opinion there is no presumption that what experts think is true—only the assumption that there is something to be gained from knowing what the experts think. Expert opinion is certainly no substitute for direct evidence. However, in instances in which direct evidence is hard to obtain, expert opinion may be the only recourse, and in such cases it will be useful not only to have the views of selected experts, but also a measure of majority expert opinion.

Two surveys of experts on the effects of television on children are available. Murray (1983) queried 109 persons who had published articles or reports on the topic of children and television in regard to the following statement in the 1982 report of the National Institute of Mental Health, *Television and Behavior: Ten Years of Scientific Inquiry and Implications for the Eighties* (Pearl, Bouthilet, & Lazar, 1982a, 1982b):

> The consensus among most of the research community is that violence on television does lead to aggressive behavior by children and teenagers who watch the programs. This conclusion is based on laboratory experiments and on field studies. Not all children become aggressive, of course, but the correlations between violence and aggression are positive. In magnitude, television violence is as strongly correlated with aggressive behavior as any other behavioral variable that has been measured. The research question has moved from asking whether or not there is an effect to seeking explanations for the effect. (1982a, p. 6)

Sixty-eight respondents returned his questionnaire; more than 80% strongly or moderately agreed with the statement.

Bybee, Robinson, and Turow (1982) asked 784 persons belonging to professional organizations for communications teachers and scholars to indicate whether they considered television to have been the cause, an important cause, or a somewhat important cause of 18 possible effects. Four hundred eighty-six persons responded as displayed in Table 1. The most agreed-upon effect was an increase in world knowledge. More than nine out of 10 respondents said that television was a somewhat important cause, an important cause, or the cause of such a change. Other effects imputed to television by at least three out of four respondents were: increased buying behavior, decreased physical activity, increased reinforcement of social values, decreased reading, and increased desire for immediate gratification. Seven out of 10 respondents thought that television had increased children's curiosity. A similar number, in agreement with the Murray survey, blamed television for increasing aggressive behavior and for in-

creasing ethnic stereotyping, while crediting it with increasing verbal ability. More than half held television responsible for decreased attention span, increased interest in sex, decreased creativity, increased distorted political perceptions, and increased prosocial behavior. The lowest scoring effect, decreased social values, was thought to be influenced by television by more than four out of 10 respondents.

TABLE 1

What Experts (almost 500 Professors) Think the Effects of Television on Children Have Been

Top Ten	Percentage Saying Television at Least a Somewhat Important Cause
Increased world knowledge	91.4
Increased buying behavior	84.2
Decreased physical activity	79.9
Increased social value reinforcement	79.5
Decreased reading	79.4
Increased desire for immediate gratification	75.5
Increased curiosity	69.8
Increased aggressive behavior	65.8
Increased ethnic stereotyping	65.6
Increased verbal ability	65.4
Others	
Decreased attention span	58.4
Increased interest in sex	58.4
Decreased creativity	58.1
Increased distorted political perceptions	58.0
Increased prosocial behavior	52.0
Increased alienation	47.1
Increased sex stereotyping	45.2
Decreased social values	42.1

Source: Bybee, C., Robinson, D., & Turow, J. *Mass media scholar's perceptions of television's effects on children.* Unpublished paper presented to the annual convention of the American Association for Public Opinion Research, Hunt Valley, MD, 1982. Reprinted with permission.

Obviously, experts attribute a wide range of effects to television, and many such effects are agreed upon by a majority. Negative effects include certain traits and practices involved in academic achievement: reading, immediate gratification, attention span, and creativity. Positive effects include an increase in world knowledge. The experts, then, think television harms formal scholastic achievement while providing general knowledge. At the same time, they believe television has contributed to misperceptions about sex roles, ethnic groups, and politics. There is substantial agreement that television has increased aggressive behavior, and that it has increased the degree to which children behave as consumers.

The empirical evidence on television and children divides into six topics. They are: (a) time use; (b) the viewing experience; (c) beliefs, knowledge, and perceptions; (d) scholastic achievement; (e) advertising; and (f) behavior. One reasonable question to address is whether or not the empirical evidence gives any support to the opinions of experts.

TIME USE

The most quoted statistic about children and television is that by the time the average child graduates from high school he or she will have spent more hours viewing television than in the classroom. However, there is a great deal more to be learned and understood about children's use of time and their viewing of television.

Ranking

During the fall and winter television season in the mid-1980s, the A.C. Nielsen Company estimated average household consumption to be at about 54 and ¼ hours per week. The estimate for children 2-11 years of age was almost 28 hours, with those 2-5 viewing slightly more than those 6-11. The estimate for teenagers was 23 and ½ hours. These compare with estimates of about 34 hours for adult women 35-54 in age, and about 29 hours for men in the same age category. Older adults (ages 55 and over) were estimated to view considerably more (for women, eight hours more; for men, about nine hours more), and younger adults were estimated to view slightly less (about an hour and a half less) (A.C. Nielsen Company, 1986).

These figures establish children as substantial, but not the most substantial of television viewers, and identify teenagers as comparatively light viewers. The prominence of television in children's lives is made clearer by data that place viewing in the context of other activities. Here, we find that television occupies more time than any other out-of-school activity, accounts for half or more of all leisure time, and is only proportionately less prominent as a leisure activity for children than for adults because of children's engaging in "free play" (Comstock, Chaffee, Katzman, McCombs, & Roberts, 1978; Long & Henderson, 1973; Medrich, Roizen, Rubin, & Buckley, 1982; Watkins, 1985). Children and teenagers obviously engage in many other activities while watching television, but the fact that television viewing is the preferred label for the expenditure of so much time attests to its centrality in their lives.

Historical trends

The amount of time children and teenagers in the United States spend with television has increased steadily since the medium was introduced in the late 1940s and early 1950s (Schramm, Lyle, & Parker, 1961; Lyle & Hoffman, 1972a, 1972b; Comstock et al., 1978; A.C. Nielsen Company, 1986). This parallels a general increase in daily television viewing by all demographic categories, exemplified by an increase in daily household television set use from about six to seven hours, or about an hour a day, between the early 1960s and the late 1970s (Comstock et al., 1978). A second major trend has been toward the equalization of television consumption across social strata. In the case of households general-

ly, this trend is observable in the progressively smaller degree to which amount of viewing is inversely related to socioeconomic status and, particularly, to the educational level of the head of the household (Comstock et al., 1978; C. C. Anderson, 1982). In the case of children, inverse relationships between amount of viewing and intelligence, as well as family socioeconomic status, appear to have declined, although they are still observable (Lyle & Hoffman, 1972a, 1972b; Morgan & Gross, 1980). These two trends mean (a) that all strata have increasingly accepted experiencing popular culture through television, and (b) that television has come to occupy an increasingly prominent place in the lives of children and teenagers.

Life-cycle

Viewing, in the sense of giving attentive interest to the screen, has been recorded as beginning as early as six months of age (Hollenbeck & Slaby, 1979), and viewing on a regular basis begins at about the age of three, with average daily viewing estimated at one-and-one-half hours daily (Huston et al., 1983). Average hours spent viewing increase during elementary school, decline during high school, remain suppressed by college and/or early involvement in child-rearing and marriage, and then return to a level similar to that for the late elementary school years, until increasing again among those 55-plus in age (Comstock et al., 1978). This cyclical pattern reflects the major role of available time, or opportunity to view, in determining the amount of television that a person will view (Barwise, Ehrenberg, & Goodhardt, 1982; Robinson, 1981; Kubey, 1986; Rubin & Rubin, 1982).

For adults and young people alike, television is very frequently viewed as a consequence of being in the vicinity of an operable TV set and having nothing else that compels one's time, attention, or presence. Viewing is less frequent among teenagers than younger children because of increased demands of school, freedom to be outside the household, and opportunities to engage in social and other activities. The explanation for the viewing life-cycle also applies to the decline in audience size of somewhat more than 10% of both adults and young persons that occurs every summer, although the most striking aspect of this statistic is that television remains a major consumer of time when so much of what is on has been broadcast before.

Household centrality

In their study of time use by several hundred children in Berkeley, California, Medrich and colleagues (1982) not only identified television as one of the five major "domains" of time use among children (the others were: alone or with friends; with parents; jobs; chores; shopping; and organized activities), but proposed that families can be located on a dimension reflecting the centrality of television within the home, with centrality said to increase when "the television was on during dinner; children said they

could watch as much as they wanted; children reported watching often with friends; and the mother watched a lot of television herself." Centrality meant fewer rules and strictures about television viewing; the more permissive the television environment established by parents, the more television children viewed. Permissiveness decreased with the level of education achieved by parents. Desmond and colleagues (1983) and C. Roberts (1981) reported similar findings. In effect, parents to a large degree determine whether the child will be a light, moderate, or heavy viewer of television, and at the extremes of the centrality dimension are those households where television is at the center of life and those where it is peripheral or muted.

It has been clear for many years that at every social stratum blacks view more television than whites, and that the inverse relationships between socioeconomic status and (a) amount of television viewed and (b) attitudes favorable toward the medium that exist among Caucasians do not hold for blacks (Bogart, 1972a; Comstock et al., 1978; Greenberg & Dervin, 1970, 1973; W.H. Anderson & Williams, 1983; Poindexter & Stroman, 1981). The Berkeley data indicate that black and white families differ in regard to children and television in many ways congruent with these earlier findings. Although permissiveness and the centrality of television were inversely related to socioeconomic status among both black and white families, among black families at every stratum there were far more children who were heavy viewers and far more families in which the centrality of television was high. Television thus occupies an especially prominent place in the lives of black children and within black households with children.

Other activities

The relationship between television and other activities can be viewed from two perspectives: (a) the effects of its introduction, and (b) the effects of current greater or lesser viewing. The accompanying data variously support the views that television's influence has been profound and that it has been negligible.

Comparisons in 12 nations of television set owners and non-owners before television ownership became near-ubiquitous in many countries (Szalai, 1972; Robinson, 1972a, 1972b; Robinson & Converse, 1972), data from U.S. communities during the first decade of television availability (Cunningham & Walsh Publishers, 1958; Coffin, 1955), data from Great Britain covering the first half dozen years of set ownership (Belson, 1959), and various U.S. media statistics (Bogart, 1972b) all indicate that television substantially reduces use of other media, particularly movie theater attendance, radio listening, magazine and book reading, and engaging in a variety of activities, including housework, hobbies, social activities outside the home, and attendance at conventional religious observances. These changes could hardly fail to affect the lives of children even when, as in the case of hobbies and unlike comic book reading, they directly reflect adult behavior rather than the behavior of young persons.

In certain instances, we can say with confidence that television continues to suppress an activity because the activity remains below its historical peak achieved before the introduction of the medium. Examples of such activities are comic book reading, and, for children if not for teenagers, movie attendance. However, often we cannot be sure about continuing effects for two reasons. The data from Great Britain indicate that infrequently engaged-in activities completely recovered pre-television levels by the end of six years, and frequently engaged-in activities, substantially recovered; a similar recovery pattern occurs in the U.S. time series data.

In addition, secular trends may vitiate initial television effects, or may simply record an increase in an activity that may or may not be below what would have occurred in the absence of television. For example, time series data beginning in 1945 make it clear that television significantly reduced per capita library circulation (Cook & Campbell, 1979; Parker, 1963). Most affected were fiction titles; in accord with the concept of functional displacement (which holds that one medium will displace another when it serves the same function in a superior way) television, as primarily a disseminator of fiction, would be expected to displace fiction more than fact books. The same explanation would apply to television's effects on comic book reading, radio listening, and movie theater attendance. However, the same time series data document that per capita library circulation was *secularly* increasing and would climb progressively to higher levels. Similar secular increases can be seen in book and magazine publishing. Furthermore, although comparative data for radio are not available (since radio to a substantial degree has been a medium broadcasting music for young audiences), it is likely that the radio listening of young children and teenagers today might be greater than before the arrival of television, even though the national daily average has reduced.

It is impossible to say in such circumstances whether per capita consumption today is affected or unaffected by television. The best that can be done is to make a judgment based on the plausibility that one medium subtracts from the audience of another based on various needs served. As the updating 50 years later of the famous Middletown studies by Robert and Helen Lynd so unambiguously documents (Caplow, Bahr, Chadwick, Hill, & Williamson, 1982), the enormous numbers of hours recorded as devoted to television daily in the United States occur in an environment in which the amount and variety of media available and consumed have increased enormously.

Certainly, one profound change of which television is a central component is the great increase in entertainment in the lives of children and teenagers. Television increased overall mass media consumption by an average of about an hour a day (Robinson, 1972a), with television accounting for about three-fourths of all mass media consumption. Mass media are in the business of manufacturing symbols to which people willingly will give their attention, and their profits come from fees for access to them from the public, or fees from advertisers for access to the public's attention. Television is primarily an entertainment medium. However great the stress on accuracy, fairness, balance, and responsibility of television

news organizations, they too function under a requirement of presenting information in a manner that will be satisfying as well as informative to the consumer. Television covers the other entertainment media, such as movies and records, and newspapers and magazines cover the entertainment media, including television. The result is that growing up occurs in an environment in which the symbols of popular culture are present to a degree unimagined before the introduction of television.

No similarly forceful statement can be made about the likelihood that greater amounts of television viewing take the young person away from other activities. On the whole, children and teenagers who are lighter or heavier viewers do not seem to differ much in the other activities in which they engage, although one likely exception is time spent reading (Lyle & Hoffman, 1972a, 1972b; Hornik, 1981; Medrich et al., 1982; T.M. Williams, 1986). Otherwise, it was the introduction rather than amount of television use that affected other activities. This seeming implausibility makes sense when it is recalled that (a) television is viewed when other compelling opportunities are absent, and (b) the providing of those opportunities would have far more to do with parents, the schools, and the community than with television. Even so, the admonition of Medrich and colleagues (1982) merits serious consideration:

> Even if television viewing had no measurable effects on children. . . it would still be argued that it is an inadequate agent of socialization and a poor use of time relative to other alternatives. Furthermore, while television may have few measurable negative consequences, it has few measurable benefits for children either. . . . Most children watch too much television given the time-use options. Their time might be better spent, in the sense that doing other things might teach them more about their world and foster development of talents, intellect, and physical abilities. (p. 227)

New technology

Although a full discussion of the implications for young persons of the so-called "new technologies"—videocassette recorders (VCRs), videodiscs, increased access to broadcast channels via cable and satellite, specialized cable channels, pay services such as Home Box Office, cable systems that permit the viewer to interact with programming, personal computers and computer-compatible television receivers, video games, newly widespread access to data banks and software, and the like—is beyond our present scope (for broad overviews, see Greenfield, 1984, and Rogers, 1986], two phenomena require comment: (a) the slow acceptance of some of these innovations, and (b) the rapid diffusion of one in particular, the VCR.

For many years, it was predicted that by the mid-1980s at the latest, the majority (and some would have said "almost all") homes would be wired for cable, and various specialized services would abound, including much programming of a cultural and educational nature for young people. Among the benefits were to have been programming designed for specific

ages from which children and teenagers might benefit more and which they might enjoy more than the programming aimed at heterogeneous young audiences on which broadcasters depend in their search for audiences of maximum size. However, cable diffusion has been much slower than predicted, and specialized channels increasingly have turned to more general programming as the audiences for specialized fare have proven to be too small for economic viability. As a result, the promise of superior programming for children and teenagers has not been realized.

On the other hand, the VCR has exceeded expectations about diffusion, a phenomenon largely attributable to sharply falling prices for VCRs and fees for VCR programming, as well as the American passion for gear, as exemplified by the diffusion of high fidelity and stereo equipment. Its ascent of adoption has been far sharper than that of cable, and before the end of the decade, a majority of households will probably own a VCR. For children and teenagers (as well as everyone else), this trend means that (a) the viewer will have the opportunity to view programming previously unavailable because its sexual, violent, cultural, or educational content barred it from other means of dissemination; (b) the viewer will be able to "narrow-tune" by topic and content; and (c) young people may become more accustomed to viewing on the basis of topic and content, and thus demand more from, or use less, non-VCR program sources.

THE VIEWING EXPERIENCE

Although having so much in common with the consumption of other media, the viewing of television also has some claims to uniqueness. The experience can be described using such concepts as content indifference, involvement, monitoring, and cognitive or mental activity. The cognitive processing that occurs when children and teenagers view television involves issues that, once unaddressed, now receive increasing attention.

Content indifference

The competition among broadcasters for higher "ratings" (the proportion of all television households viewing a program) and "shares" (the proportion of all viewing households tuned to a specific program), and thus enhanced profits, would give the impression that program content dictates viewing. Nothing could be further from the actual circumstance.

There is abundant evidence that viewers generally are content-indifferent, with an important qualification. On the one hand, a 12-nation study of time use in the mid-1960s (Szalai, 1972; Robinson, 1972a; Comstock et al., 1978) found that, despite great differences in national wealth, culture, hours of broadcasting, number of channels, and character and quality of programming, the amount of time television sets were on was extraordinarily similar everywhere, including such diverse sites as the United States, the U.S.S.R., France, Poland, Peru, Belgium, and East and West Germany. On the other hand, the examination of thousands of New York and California viewers indicates a 50% average probability that a viewer in the audience for a weekday or weekly serially broadcast program will be in the audience for the next broadcast, although when television is viewed at that particular time, viewers will almost always opt for the same program (Barwise et al., 1982). This extraordinary datum holds, with slight variation, for daytime, primetime, entertainment, news, and even such fan-enamored offerings as *Monday Night Football*.

The explanation is that television typically is only viewed when no other activity requires attention, and program content is not the principal factor in assembling an audience for television; phrased somewhat differently, the decision to view is a two-stage process in which the decision whether or not to watch television takes precedence over the decision of what to view. Children and teenagers are no different from adults in their relative indifference to content, as can be seen from their viewing of programs made for general audiences before they can understand much of the content; about 60% of all children 2-11 in age are in the Saturday morning television audience at its peak between 9 and 10:30 a.m. because they have nothing that takes them away from the programming designed for them and the afternoon lies ahead for other activities, while the fact that about 20% are in the audience at any given time throughout the afternoon exemplifies the principle of content indifference (Comstock et al., 1978). It is time available, or opportunity, not content, that dictates viewing.

The major qualification, of course, is that once television has been selected as the preferred activity, program options will be carefully reviewed for the most satisfying (in the famous phrase of one television executive, "least objectionable") programming; thus the competition for ratings and shares makes perfect sense.

Involvement

It is crucial to explicate the concept of "television viewing" in order to understand what a viewer experiences. Viewing has been defined as "a discontinuous, often interrupted, and frequently nonexclusive activity for which a measure in hours and minutes serves only as the outer boundary of possible attention" (Comstock et al., 1978). Such a description derives from the observation of viewers while they watch television and from the mechanics of television audience measurement.

In pioneering studies, Allen (1965) recorded viewers in about 100 Oklahoma and Kansas homes by time-lapse movie cameras at the rate of four frames per minute, and Bechtel, Achelpohl, and Akers (1972) videotaped viewers in 20 Kansas homes. In both instances, viewing was recorded over an extended time period, and what was on the screen was recorded as well as viewer behavior. Allen found that for about one-fifth of the time, no one was in the room while the set was on and for an equal period, someone was in the room but not looking at the set; Bechtel et al. found similar inattention, ranging from about 25% inattention for movies to almost 50% for news and commercials. Other activities that most frequently occur in conjunction with viewing are conversation, housework, eating, other leisure activity, reading, and child care.

Our understanding of viewing also derives from the mechanics of audience measurement. A person literally is counted (by A.C. Nielsen and other measurement firms) as being in the television audience at any given moment if he is so recorded by self or someone assigned the responsibility of recording family viewing behavior. Such a practice obviously accommodates substantial amounts of inattention. A different concept of viewing, such as one measuring eye attention to the set, the absence of any activity other than conversation or eating, or some minimum boundary of attention, would lead to very different estimates and a different definition of television viewing.

The currently accepted concept of television viewing would imply that it is typically an activity relatively low in personal, intellectual, or emotional involvement. Much evidence supports such a view. One out of four people in one sample could not recall having any thoughts while watching television (Neuman, 1982); more than a third of the persons in the audience at any given time did not specifically choose the program being viewed, accepting someone else's choice or viewing what followed an earlier choice, and about one-fourth of the time, programs were not being watched from beginning to end; and, about a third of viewers cannot provide accurate accounts of programs said to have been watched (LoSciuto, 1972; Robinson, 1972b). By the time children become teenagers, they

undoubtedly are much like adults in their responses to television. Before that, however, their attention is probably even more discontinuous than that of adults when watching general audience programming which they do not fully comprehend (D.R. Anderson & Lorch, 1983; Bryant & Anderson, 1983), and close to maximum recorded levels when watching a program that is novel to them and designed for them (Bechtel et al., 1972).

This pattern leads us to a principle governing attention to the screen: attention rises with the need and ability to assemble a narrative successfully, as is the case with movies, and for children, children's programming, and falls for content that is redundant and episodic, as is the case for news, commercials, and sports (Bechtel et al., 1972). However, the fact that parents frequently categorize their children as viewing when the children think they are playing with their toys (Alexander, Wartella, & Brown, 1981) means that for much of the time involvement is so modest that it is undetectable to an observer.

The degree to which the currently accepted concept of television viewing leads to large estimates of the role of television in children's lives is made clear by comparing parent-kept viewing diaries and time-lapse video recordings as measures of 5-year-olds' television viewing (D.R. Anderson, Field, Collins, Lorch, & Nathan, 1985). The maximum estimates of viewing for the former were about 40 hours per week; for the latter, based on eye contact, about 3½ hours. Visual attention averaged two-thirds of the time spent in front of the set, a figure in accord with the data of Allen and Bechtel and colleagues, but the impression that current audience measurement techniques distort children's viewing is further advanced by the finding that time spent with television and attention to the screen were uncorrelated.

Monitoring

Viewing does not describe what transpires in children's and teenagers' experience of television as accurately as does the term "monitoring." This conclusion is made quite clear by recent research on the mental monitoring processing occurring during the television experiences of children (D.R. Anderson & Lorch, 1983; Krull, 1983; Bryant, Zillmann, & Brown, 1983; Huston & Wright, in press; Collins, 1981; Lorch, Anderson, & Levin, 1979).

Despite the typically low level of involvement in television viewing, a great deal of mental activity accompanies it (Krendl & Watkins, 1983; Thorson, Reeves, & Schleuder, 1985). The television experience can be labelled justifiably as either active or passive, and no good rationale exists for giving either term precedence; the experience is in some ways passive and in other ways active. In the case of children and teenagers, this mental activity can be described in terms of stimulus features, viewer attributes, and situational factors.

Stimulus features divide into those representing content and those representing form (Huston, Greer, Wright, Welch, & Ross, 1984; Wright et al., 1984; Wright & Huston, 1983; Rice, 1984; Rice, Huston, & Wright,

1983; Huston & Wright, in press). Form (sometimes called "formal") features include auditory, visual, and structural elements by which content is conveyed. In the abstract sense, the two are independent; in practice, within a cultural context or a genre of programming, content and form features are often related (as in the case of music that often signals a suspenseful episode in which the protagonist is at risk). Children and teenagers, and presumably older viewers as well, use both types of stimulus features in choosing programs, in deciding whether to attend to a particular portion of a program, and in understanding what is happening. For example, music may serve as a cue, telling the viewer whether a program is more likely to please girls or boys, when something important or interesting is going to happen, and how to interpret what has been shown (for example, perceiving an event as menacing).

The principal viewer attributes of interest are age, and, to a significantly lesser degree, sex, with chronological age understood as an imperfect proxy for the level of cognitive development. Numerous other variables are involved, reflecting individual differences that might not be related to responses to television; for example, Weigel and Jessor (1973) found conventionality associated with greater amounts of viewing among teenagers, and Kubey (1986) concluded that negative mood states among adults led to increased television viewing as a means of escape. Cognitive level, however, indexes the ability of a young viewer to understand the content and accurately interpret the form features of television, and, along with age, identifies differences in program preference and satisfaction (Acker & Tiemens, 1981; Collins, Sobol, & Westby, 1981; Collins, Wellman, Keniston, & Westby, 1978). Principal findings here are: (a) as would be expected, the ability to understand content and form features increases with cognitive level; (b) the implicit recognition and response to form features precede any explicit ability to identify them; (c) comprehension predicts attention to the screen, which increases with cognitive level; and (d) congruencies between content and form features (i.e., regularly employed conventions of program construction) help young people learn from television, as do interpretive comments and explanations from adults.

Situational circumstances include the availability of other stimuli, such as toys or reading matter, and the presence and behavior of other viewers. The opportunity to engage in some other activity suppresses attention to the screen; the more attractive the alternative, the more attention to the screen is suppressed. Many will recall that the original *Sesame Street* episodes were evaluated on the basis of whether an attractive plaything could divert children from the screen, with sequences discarded when such was the case (Lesser, 1972, 1974; Cook et al., 1975; Cook & Curtin, 1986); thus, the program ensured one of the processes supposedly necessary for learning, attention. Children have also been found to follow the cues of others, attending to the screen when one or another other viewer attends.

These findings disabuse us of the model of children and teenagers viewing television with the medium principally in control, and with television's visual elements predominantly guiding attention. The likelihood of attending to the screen at any given moment is somewhat increased in that eye

contact was made in the immediately preceding time period, creating a modest degree of visual dependence that encourages continuing, if irregular, attention to the screen. However, on the whole, young people (and probably adults as well) selectively attend to the screen as a function of numerous content and form features, viewer characteristics, and situational circumstances. As cognitive level increases, children become more effective in monitoring television because they recognize the formal features on which enjoyment and understanding depend; their viewing techniques are acquired. Viewing constitutes a transaction in which time and attention are constantly being shifted between the screen and other activities (Pezdek & Hartman, 1983). In this sense, viewers are active and not passive in their consumption of television.

Cognitive activity

While monitoring implies mental processing, so too does the understanding of content features and the interpretation of form features on behalf of such understanding. The concept of amount of invested mental effort proposed by Salomon (1983, 1981a, 1981b) extends the concept of cognitive activity as a factor upon which some effects of television may depend. This concept is defined as "the amount of invested mental effort in nonautomatic elaboration of material" and is often represented by the acronym, AIME. AIME has a number of empirically supported implications for the responses of young people to television. Expectations about its appropriateness for exposure to a given experience—such as reading a book, attending a lecture, or watching television—conceivably govern the degree of effort that is actually expended; that is, effort is governed by expectations about the stimulus as well as by the stimulus properties (Bandura, 1982). In addition, AIME is proposed as a major factor influencing whether apparent attention to material will result in comprehension, learning, or later recall. The greater the mental effort expended, the more likely such outcomes.

Compared to print, television elicits low expectations about the appropriateness of invested mental effort, and not much is learned from its entertainment by children and teenagers. This expectation, to some degree, may be carried over to other types of programming, such as news, debates between political candidates, and informational, cultural, and educational fare; thus, these programs may be less effective as educational experiences than they otherwise might be. Finally, the effectiveness of television and other media educationally can be enhanced by increasing the amount of invested mental effort that is expended.

The studies reviewed in regard to monitoring and cognitive activity represent one of the most recently emerging areas of research in regard to television and young people. This area is marked by the elucidation and explication of such conceptual terms as "passive" or "active" as descriptive of television viewing (Salomon, 1983), and of paradigms, such as the compatibility of this focus with earlier approaches (for instance, social learning theory) (D.R. Anderson & Lorch, 1983; Bryant & Anderson,

1983). These studies are significant for representing, as Salomon (1983) observes, a return to the emphasis of Schramm and colleagues (1961) on what the child brings to television as a factor on which influence of the medium is contingent. Also significant is their initiation of a set of findings which may enable television to become more enjoyable, better understood, and more useful to young people (Huston & Wright, in press). Finally, these studies have increased our understanding of an everyday, seemingly trivial category of behavior that in fact has a claim to some complexity.

KNOWLEDGE, BELIEFS, AND PERCEPTIONS

The phrase "knowledge, beliefs, and perceptions" is intended to encompass the wide range of cognitions that television may influence among children and teenagers. In the abstract, it is easy enough to distinguish the three, with "knowledge" representing assumed facts; "beliefs," expectations and inferences about behavior and events, their motivations, and their consequences, and the assignment of some value to these phenomena; and "perceptions," the evaluation of magnitude and relationship among physical and social stimuli. In practice, obviously, matters are not so simple. For example, the labelling of a film as "violent" or "pornographic" reflects some assumed knowledge about the definition of violence or pornography, beliefs about what would qualify, and the perception of a particular stimulus as having exceeded the threshold. Thus, no sharp distinctions among them will be attempted, although in some cases it will be clear enough to which domain a particular finding applies.

Schramm, Lyle, and Parker (1961) in the United States and Himmelweit, Oppenheim, and Vince (1958) in Great Britain, in their large-scale inquiries composed of numerous studies involving thousands of children, found limited effects on knowledge attributable to the introdution of television. Schramm and colleagues concluded that most effects involved knowledge about entertainment; Himmelweit and colleagues found increases in knowledge about geography, science, sports, music, handicrafts, and household chores, but none for English literature, history, nature or rural studies, art and architecture, current affairs, or religion. Both groups concurred that the positive effects were confined to less intelligent children whose access to and ability to use alternative sources of information were limited, and Schramm's group concluded that the more intelligent might suffer in knowledge from a great deal of television viewing because of the greater intellectual value of displaced activities. DeFleur and DeFleur (1967) found that television shaped children's beliefs about occupations, primarily those occupations with which they had not had much, or any, firsthand experience. These varied findings lead to another variant of our principle: television is more likely to have an influence when it supplies something otherwise missing, and less likely to have an influence when the information that it supplies is redundant.

Ample evidence exists that children and teenagers will acquire and retain information disseminated by television in a format intended to teach (D.F. Roberts & Bachen, 1981; D.F. Roberts, Bachen, Hornby, & Hernandez-Ramos, 1984). The CBS "National Citizenship Tests" provide a good example (Alper & Leidy, 1970). This television series was intended to teach its audience facts about U.S. government institutions. For a program covering Constitutional rights and obligations, three comparable groups of about 1,000 teenagers were tested representing (a) a pre-program sample, (b) a post-program non-viewer sample, and (c) a post-program viewer sample; six months later a national sample of 9,000 teenagers

divided into viewers and nonviewers was again tested. The tests covered topics included and not included in the program, and both factual knowledge and attitudes. No shifts in knowledge or attitudes representing uncovered material occurred among either viewers or nonviewers, but for covered material definite shifts were recorded in the expected direction among viewers only, for both attitudes and facts; these gains appeared to persist after the passage of six months. Similar results were recorded for learning by children from a CBS program, *Fat Albert and the Cosby Kids* (Columbia Broadcasting System, 1974), intended to promote positive forms of social behavior among children. Ninety percent of several hundred children 7-11 years in age, interviewed in three cities, described the program in accord with the intended prosocial message, and about one out of seven of these messages was related by children to events in their own lives.

Studies in the use of television news by children and teenagers lead to a number of tentative conclusions about information acquisition from television (Chaffee, McLeod, & Atkin, 1971; Cohen, Harrison, & Wigand, 1974; Hollander, 1971; Tolley, 1973; Tan, Randy, Huff, & Miles, 1980). They include:

- a large majority of children and teenagers believe they get most of their information about public events from television, ranking television far above teachers, parents, peers, or other media;

- exposure to news programs increases factual knowledge, as does exposure to newspapers and other print media; but children and teenagers are far more likely to see news than to read news, so television is the primary information provider;

- children and teenagers typically are not much exposed to the news by any means;

- exposure to news programs was increased when parents had a high interest in the topics being covered or when parents strongly encouraged their offspring to express their opinions;

- the opinions of children and teenagers were correlated with the perceived opinions of parents and not with those of favored newspersons, indicating that while television may supply information, parents influence opinions; and

- learning from news increased when information was repeated, and when items had a high emotional content.

The resulting model would hold that (a) media use is influenced by parental opinion and behavior, (b) learning occurs from media use, (c) opinion formation is largely shaped by parents and not media, and (d) stimulus characteristics can enhance the learning that occurs.

Does television have as important a role as children and teenagers say? The date of Robinson and Levy (1986) on the sources of news among adults invite skepticism: interpersonal conversation is about as frequent a source of knowledge as exposure to the media. However, children and teenagers ordinarily would not have the knowledge or interest to stimulate interpersonal conversation; to the limited degree that news reaches them, the media, and especially television, are probably their principal source of information.

VIEWING'S IMPACT ON VIOLENCE AND SEX ROLES

Several studies have reported relationships between television viewing and attitudes toward law enforcement and aggressive behavior that are suggestive, if not demonstrative, of some influence by the medium. Lovibond (1967) found that ideas, attitudes, and values favorable to force and violence among adolescents correlated with comic book use before the introduction of television, and correlated with television exposure after its introduction, with comic book reading drastically reduced (and the earlier recorded correlation no longer present). In both cases, exposure to media force and violence was associated with the holding of congruent cognitions. Among about 800 fourth-, fifth-, and sixth-grade boys and girls, Dominick and Greenberg (1972) found that attitudes favoring the use of violence to settle interpersonal conflicts correlated positively with exposure to television crime and violence and were inversely related with family socioeconomic status, with the latter relationship stronger than the former. Singer, Singer, and Rapaczynski (1984a), in a sample of about 60 children whose average age was four, found that the amount of television viewing, and especially viewing of violent programs, was associated with a belief in a frightening world. Miller and Reeves (1976) found among 200 third to sixth grade children that they frequently nominated television characters as people they wanted to be like when they grew up. Among elementary school children five to eight years in age, Meyer (1973) found that males often had favorite television characters who behaved violently and indicated they would imitate those characters in appropriate circumstances. In studying several hundred fifth graders, Dominick (1974) found that the viewing of crime and police shows was positively correlated with identification with a television character associated with law enforcement, the belief that criminals usually get caught, and knowledge of civil rights when arrested.

Several studies also suggest some influence of television on expectations about appropriate sex roles. Freuh and McGhee (1975) found that heavy television viewing was associated with stronger traditional sex-role development in both boys and girls of grade-school age. Among children aged three to six, main characters mixing female and male attributes in their portrayals achieved some desired effects in children's immediate reactions. The material did appeal to them; comprehension of sex role portrayals increased with grade level. Based on the children's stated intentions to engage in 10 different activities, the authors concluded that sex-typed behavior is influenced by expectations of external reinforcement as well as by personal reactions to these behaviors, although a personal attitude was consistently the most important predictor of sex-typed behavioral intentions. They suggest that interaction occurs among personal values of the viewers, expectations in terms of rewards, the effects of a television model's sex, the viewer's liking of that model, and the effects of that model's proximity in characteristics to a "significant other" (such as a parent) in a child's life.

Johnston and Ettema (1982) evaluated the effectiveness of the 13-episode *Freestyle* public television series which was designed to change beliefs and attitudes about sex roles among boys and girls aged 9-12. They collected data from about 5,000 children in seven different communities, who were variously divided into non-viewers, those who viewed at home as they would ordinarily view television, and those who viewed in classrooms where organized, supportive discussions of the programs took place. In the classroom, with the organized discussion, they found that the programs changed beliefs and attitudes in the sought-for direction. Most clearly affected were beliefs and attitudes about the appropriateness of such activities as mechanics, nurturing, and athletics for boys and girls; thus, attitudes toward the participation of girls in athletics became markedly more favorable. Many such shifts were still measurable several months later. In regard to the viewers' own interests, there were few changes, although girls appeared to increase their interest in mechanics. Beliefs and attitudes about more abstract skills such as leadership, risk-taking, and independence appeared unaffected. Viewing at home or in the classroom without discussion had more limited effects, although there were a few shifts in the sought-for direction.

These varied data lead to some intriguing conjectures. Television can alter expectations in the short- and long-term when it deviates from the normative (or stereotyped), and when it is designed to have such effects. This supposition leads to the prediction that television on the whole would have negligible or no effects on the sex-role expectations of children and teenagers because, for the most part, its portrayals are normative and in accord with the everyday experiences of young viewers, and are not designed to alter expectations.

Several other studies have examined the perception of violence and aggression in connection with television exposure. Chaney (1970) found in a British sample of about 60 twelve-year-olds that, among boys, being highly involved in violent programming was associated with the perception (or belief) that such entertainment was realistic. Rabinovitch (1972) found that fifth- and sixth-grade children who had subsequently viewed entertaining television programs described simultaneously-shown violent and nonviolent slides as less violent than children who had seen less entertaining television; thus, a state of satisfaction appears to inhibit perception of violence in complex and ambiguous stimuli. In a sample of about 600 fifth- and sixth-grade boys, Greenberg and Gordon (1972a, 1972b) found that being black or socioeconomically disadvantaged predicted the perception of less violence, greater acceptability, greater realism, and a greater liking for violent television scenes. Snow (1974) found that three-fourths of a sample of 50 children 4-12 years of age did not judge violent cartoons to be "violent," while war scenes in newscasts were so judged by about two-thirds, with perceived humor the principal reason given for not so judging the scenes. Cline, Croft, and Courrier (1973) found less physiological arousal to violent television among boys who were heavy viewers of television than among light viewers. Drabman and Thomas (1974) found that children asked to scrutinize the play of other children

in a distant room via a television monitor waited longer to seek adult help when the playing children became violent and destructive if they had seen a violent television episode a few minutes earlier. In an Australian sample, Hawkins and Pingree (1980) found that among children in grades two, five, eight, and eleven, perceiving the world as mean and dangerous was associated with viewing greater amounts of violent television. Zillmann and Bryant (1982) found that male and female undergraduates were less likely to judge films as pornographic or violent and were more accepting of the "rape myth" (i.e., the belief that women enjoy involuntary sex) after extensive exposure to violent and pornographic films in which women are victims; Linz, Donnerstein, and Penrod (1984) found much the same tendency, and extended evidence on behalf of effects to judgments rendered in mock trials of alleged rapists, with those so exposed being much more lenient toward alleged perpetrators and more critical and unsympathetic toward alleged victims.

These varied findings support two broad propositions. They are: (a) the perception of television portrayals is a function of the values and criteria brought to the screen by the viewer, and (b) television portrayals of deviant or extreme behavior, or behavior otherwise foreign to viewers' everyday experience, may somewhat desensitize viewers to similar future stimuli and experiences, especially so when the stimuli themselves are media portrayals. Thus, there would appear to be a circularity, with values and criteria determining perception of the media and some aspects of the real world as well, and values and criteria shaped somewhat by media content.

These findings on knowledge, beliefs, and perceptions give some authority to the perspective offered by a number of observers that television influences behavior by its contribution to cognitive elements given such labels as mapping, prototypes, schema, schemata, scenarios, scripts, social cognitions, and neoassociations (Bandura, 1986; Berkowitz, 1984; Collins, 1983; Janis, 1980; T.M. Williams, 1986). T. M. Williams and colleagues (1986) describe this perspective as the governing of behavior by "mental models, beliefs, and expectations which are built up and modified through experience."

In the general model (Abelson, 1976, 1981; Schank & Abelson, 1977), television would be one of many contributors and conceivably a minor one; in a television-specific formulation (Berkowitz, 1984), the conditions on which a contribution by the medium are contingent would be the center of attention. Three distinct cognitive elements presumably would be involved: (a) constantly portrayed states or characteristics of circumstances, events, people, and scenes; (b) such elements consciously linked sequentially; or (c) such elements linked sequentially without being part of a conscious scheme of behavior. The first covers the attributes that one would anticipate in regard to a forthcoming or evolving experience; the second, the behavior in which one intends to engage to cope with a situation (such as entering a *Michelin* three-star restaurant in Paris without a reservation but with a firm intention to get a table); and the third, the explanation for impulsive and unplanned evolving behavior in response to new stimuli (such as the rioting young adults sometimes engage in at beach resorts

during spring semester break). Children and teenagers arguably would be particularly affected by television because such cognitive elements would be in the process of change and development during those years; among adults, they would be largely matured and stable.

The "cultivation analysis" of Gerbner and colleagues (Gerbner, Gross, Signorielli, & Morgan, 1986; Gerbner, Gross, Morgan, & Signorielli, 1980; Gerbner, Gross, Signorielli, Morgan, & Jackson-Beeck, 1979) would be a subcategory of such effects. These authors hold that large amounts of crime and violence on television instill a belief in a mean world and a set of attitudes representing distrust and alienation from others, with the amount of viewing increasing such effects. Although much criticism, controversy, and suggested amendments have been made regarding this formulation (Comstock, 1982; Cook, Kendzierski, & Thomas, 1983; Doob & MacDonald, 1979; Hirsch, 1980a, 1980b, 1981a, 1981b; Gerbner et al., 1980; Gerbner, Gross, Morgan, & Signorielli, 1981a, 1981b), Hawkins and Pingree (1980, 1982) supply supportive data for such effects on an Australian sample of children when amount of television exposure was measured in terms of exposure to programming in which crime and violence are prominent. The perspective under consideration implies that these heightened impressions of meanness, danger, and threat would direct future behavior in such spheres as the avoidance of risky situations (possibly good), hostile responses to innocent intrusions (probably bad), and a readiness to approve of authoritarian governance to assure law and order (a matter of values). From such a perspective, television would influence behavior by supplying vicarious experience that contributes to the cognitive elements. Presumably, it would influence most when not redundant, when given credence as a reliable source (or perceived as "realistic"), and when a great deal of repetition occurs in the attributes of circumstances, events, people, and scenes, and in the sequences of such elements, so that viewers would be able to draw from the medium information that would contribute to the models, beliefs, and expectations ostensibly governing behavior.

SCHOLASTIC ACHIEVEMENT

The influence of television on grades earned in school, and on the acquisition of skills in mathematics, reading, and writing, has been a question persistently and widely raised about the medium since its introduction (see, for example, National PTA Television Commission, 1977). The available evidence is formative, but on certain points inconclusive.

Association

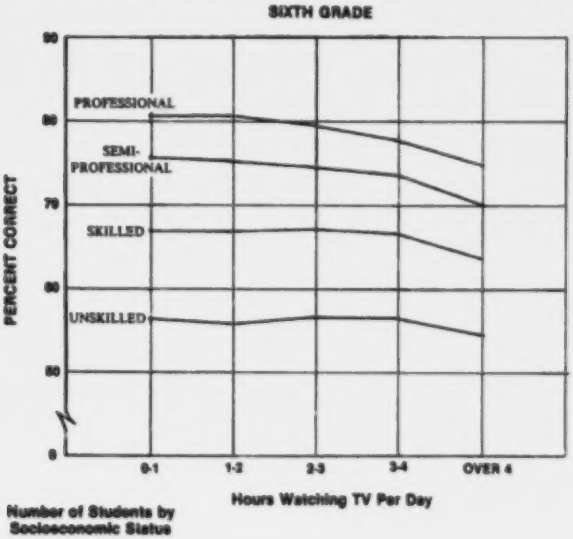
The amount of time typically spent viewing television and scholastic achievement are inversely related for both children and teenagers. Although an earlier quantitative aggregation was made by meta-analysis (Glass, 1978; Glass, McGaw, & Smith, 1981; Hunter, Schmidt, & Jackson, 1982; Rosenthal, 1984) of about two dozen studies that produced a minute negative-effect-size for the relationship between television viewing and scholastic achievement (P.A. Williams, Haertnel, Haertnel, & Walberg, 1982), this conclusion does not rest on the pattern discernible in a set of findings (in which some might appear to be in conflict with one another, as is so often the case), but on results that are compelling because of (a) the quality of measurement, (b) the size and comprehensiveness of the sample, and (c) the consistency of results.

During the 1980 school year, the state-run California Assessment Program obtained data on mathematical, reading, and writing ability and television exposure for everyone present in the sixth and twelfth grades on the day of testing. The sixth grade sample size was 280,000 and the twelfth grade sample size was 230,000; this represented 99% of the enrolled population. By the very nature of such a government endeavor, the instruments represent state-of-the-art acceptability, however open to other criticism they may be.

With certain important qualifications, the results on the whole are highly consistent. For both grade levels, for each of the three skills, and for every level of family socioeconomic status, there was a negative correlation between amount of television viewing and scores. The results for reading presented in Figure 1 are typical. There are six important qualifications or amendments: (a) family socioeconomic status is much more strongly associated with achievement than amount of television viewed, with achievement declining as socioeconomic status falls; (b) the inverse association between amount of television viewed and achievement increases as family socioeconomic status rises, with the strongest relationship occurring for pupils from the highest recorded socioeconomic status category; (c) the inverse relationship between amount of television viewed and achievement is stronger at the twelfth-grade than at the sixth-grade level; (d) for the lowest family socioeconomic status level, the inverse relationship is barely observable, and occasionally there is a rise in achievement with increases in amount of television viewed before a decline in achievement appears; (e) among students whose English was limited in fluency,

FIGURE 1

READING ACHIEVEMENT AND TELEVISION VIEWING IN THE SIXTH AND TWELTH GRADES BY SOCIOECONOMIC STATUS OF HEAD OF HOUSEHOLD



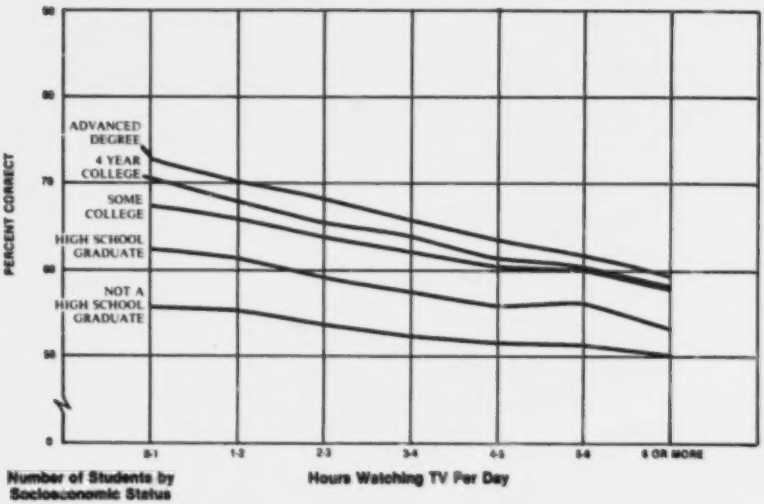
SIXTH GRADE

HOURS WATCHING TV PER DAY

NUMBER OF STUDENTS BY SOCIOECONOMIC STATUS	0-1	1-2	2-3	3-4	OVER 4	N/R	TOTAL	
Professional	15,713	11,176	7,022	3,787	4,918	337	42,953	15%
Semi-Professional	15,634	12,927	9,449	5,812	9,631	495	53,948	19%
Skilled	23,713	21,283	16,966	11,301	21,795	1,189	96,247	34%
Unskilled	10,408	9,391	7,591	5,211	11,451	769	44,821	16%
Non-Respondents	11,505	9,866	7,286	4,627	9,481	1,173	43,938	16%
TOTAL	76,973	64,643	48,314	30,738	57,276	3,963	281,907	
PERCENT	27%	23%	17%	11%	20%	2%		100%

STUDENT READING ACHIEVEMENT AND TELEVISION VIEWING ACCORDING TO SOCIO-ECONOMIC STATUS OF PARENTS

TWELFTH GRADE



TWELTH GRADE

	HOURS WATCHING TV PER DAY								
	0-1	1-2	2-3	3-4	4-5	5-6	OVER 6	TOTAL	
NUMBER OF STUDENTS BY SOCIOECONOMIC STATUS									
Advanced Degree	16,923	9,244	6,128	3,424	1,730	818	1,323	39,590	17.4%
4 Year College	14,928	10,097	7,725	4,613	2,425	1,127	1,656	42,571	18.7%
Some College	17,679	14,017	12,305	8,149	4,491	2,233	3,366	62,240	27.3%
High School Graduate	13,090	11,885	11,850	8,822	5,294	2,714	4,101	57,756	25.4%
Not a High School Graduate	5,097	4,968	5,074	4,127	2,462	1,403	2,261	25,292	11.2%
TOTAL	67,717	50,211	43,082	29,135	16,402	8,295	12,707	227,392	
PERCENT	29.8%	22.1%	18.9%	12.8%	7.2%	3.7%	5.5%		100%

Reprinted with permission from the California Assessment Program, (1980). *Student Achievement in California Schools. 1979-80 Annual Report: Television and Student Achievement.* Sacremento: California State Department of Education.

amount of television viewed was positively related to achievement, and even a downturn at the highest level of viewing did not produce scores below the average for the lightest category of viewers; and (f) the number of pupils recorded in the highest viewing categories are not trivial, with 20% watching four or more hours a day and another 11% watching between three and four hours a day in the sixth grade, and about 16% watching four or more hours a day and about another 13% watching three to four hours a day in the twelfth grade. Time spent on homework and reading outside the class assignments were also inversely related to amount of television viewing at both grade levels (California Assessment Program, 1980).

The pattern of these findings is reminiscent of the data reported by Schramm, Lyle, and Parker (1961) in their large-scale evaluation of the effects of the introduction of television on children conducted almost four decades ago. Among children scoring high on tests of intellectual ability, they found an inverse relationship between amount of television viewed and scholastic achievement. Among children scoring low on such tests, they found a positive relationship between amount of television viewed and scholastic achievement. For most children, television viewing was unrelated to achievement. In both sets of data, the inverse relationship between television viewing and achievement is strong among young people from whom the most would be expected, and it is not present or even positive among those from whom the least would be expected. The pattern invites a proposition: television viewing is inversely related to achievement when it displaces an intellectually and experientially richer environment, and it is positively related when it supplies such an environment. The stronger inverse relationships at the twelfth-grade level suggest that this pattern becomes increasingly discernible as the demands of the academic program increase.

In 1981, the California Assessment Program (1982) collected addtional data from a probability sample of more than 15,000 sixth graders in 292 schools. As would be expected, the results for family socioeconomic status, television viewing, and achievement were consistent with those obtained a year earlier. In addition, three concepts received some support: (a) television-orientation or -centeredness as a dimension on which families can be meaningfully distinguished; (b) program selectivity as a function of amount of viewing; and (c) television use as an index of active participation in one's environment. Families where television sets were present in the living room or in the child's bedroom were more likely to have a child who was a heavy viewer, who was likely to watch the same programs as his or her parents, and who was likely to discuss the programs with his or her parents; the household was television-oriented or -centered. For most programs, heavy viewers were more likely to have watched than light viewers, but heavy viewers watched a much higher proportion of light entertainment while light viewers were more likely to watch news, documentary, or informational programs and such entertainment as *M.A.S.H.* A much greater degree of program selectivity emerged in the data for adults, replicated over three decades (Steiner, 1963; Bower, 1973,

1975); among adults, a higher level of education predicted greater criticism of and hostility toward television, and more frequent demands for less viewing of television, and more cultural, educational, and informational programming, but no greater proportion of this type of programming in their regular viewing. Children were either more selective (which makes intuitive sense if one accepts the assumption that the medium is more important to them than it is to adults), or the content categorization employed by the California investigators was more sensitive to such selectivity. The final notion is implied by the fact that pupils who viewed no television scored lower than those recorded as viewing the minimal amount. Viewing television to some degree is a highly normative activity in the United States, and especially among children and teenagers; zero viewing, on the average, is likely to reflect a set of circumstances and attributes not at all likely to facilitate achievement. From this perspective, the positive associations between viewing and achievement among those in the least promising circumstances may reflect what television viewing implies about the young viewer as much as what television brings to the child.

Causation

The role of television in the inverse relationship between viewing and achievement is far less clear than the fact that such a relationship exists. There are two distinct ways in which it might be conceived. The first is causation as it is ordinarily construed in the social and behavioral sciences. In this case, television would contribute independently of all other variables to the lesser levels of achievement. Subsumed is the case in which television would contribute indirectly by independently influencing some other variable which itself then independently contributes to lesser achievement. In both cases, television would be said to be a cause of lower achievement. The second symptomatology is one in which television viewing is simply the sign of the influence of some other factor, such as lower intellectual ability, poorer prior grades in school, conflict with the family, estrangement from peers, and the like. In this case, however, television viewing would be a symptom whose relief could ameliorate some of the harmful effects of the underlying cause of lesser achievement. The inverse associations between amount of television viewed and time spent on homework, reading outside of assignments, and achievement imply that if television could be displaced by homework or outside reading among the heavier viewers, achievement might be increased. Thus, even if television could not be said properly to be the cause of lowered achievement, it remains part of the problem, whose redress conceivably could reduce the negative influence on achievement of the underlying source.

Of the two, the latter concept is somewhat more plausible. Television viewing is what children and teenagers, as well as adults, do when attention, presence, and time are not otherwise required. If heavier viewers were not engaged in television viewing, they might be involved in something else—other than homework or reading—with similar low demands on involvement and intellectual effort and similar distractions from real world

obligations and involvements. From such a perspective, television remains a problem requiring treatment among low-achieving heavy viewers.

The actual evidence is mixed, however. Most of the data concern reading ability. Using data from Central America, Hornik (1978) concludes that television negatively affects the acquisition of reading skills. Based on the results of a two-year three-community field experiment in western Canada which began with one community without television, one community with limited access to television channels, and one community with extensive access to television channels, and which encompassed the acquisition of television access by the first community, T.M. Williams and colleagues (1986) reach the same conclusion. Using data from a sample of California pupils, however, D.F. Roberts and colleagues (1984) reach the opposite conclusion: there is no independent contribution of television viewing to lowered reading ability once the influence of other variables is taken into account.

Association is documented, a problem requiring treatment identified if it is symptomatological, but whether or not television is a cause of lowered achievement, as causation is ordinarily conceived, remains moot. However, the model offered by T. M . Williams and colleagues to explain their negative effects conclusion is certainly plausible. They propose that television displaces time that should be spent learning to read, and that such displacement is likely to permanently suppress scholastic achievement by leaving children as below-par readers. Learning to read, they argue, is hard work for a child and requires practice. Television viewing may displace that practice. Reading ability in America is ordinarily acquired within a certain age range, so that once a child has emerged from this period with a low level of reading skills, he or she is likely to be continuously hampered in scholastic achievement. Once reading skills are acquired, they are retained regardless of later amounts of television viewing; thus, amount of viewing at most age ranges would be unassociated with reading ability except to the degree that amount of viewing is positively correlated across age ranges (and there is a modest degree of such correlation). Those most affected are those the least able to cope. T.M. Williams and colleagues write:

> Television provides a more attractive alternative, for most children, but especially for those who have most difficulty learning to read and who need to practice most, namely, those who are less intelligent (or have a learning disability). The brighter children either need less practice and get enough practice in school or practice more. (p. 397)

Among high school students, the reported association of poor reading skills with lower intelligence, greater television viewing, lower family socioeconomic status, and less reading is consistent with this view (Morgan & Gross, 1982).

This model could also apply to mathematical and writing skills, with the qualification that they are skills to whose improvement the educational system continuously devotes attention and for which remedial instruction

is more readily available than reading. However, the basic premise that time displaced from practice by television could leave the child without the basic skills to later perform to the level of innate capability remains applicable.

Abilities other than mathematical, reading, or writing skills have also been reported as negatively associated with television viewing. T.M. Williams and colleagues (1986) and Singer, Singer, and Rapaczynski (1984a, 1984b) both infer from their data that television viewing inhibits imaginativeness and creativity by its narrow set of presentational conventions and restricted range of models for play. T.M. Williams and colleagues hypothesized an increase in vocabulary as a consequence of the introduction of television to the no-television community, but none appeared. This null effect is reminiscent of the finding of Schramm, Lyle, and Parker (1961) that the introduction of television in the United States increased children's vocabularies to a modest degree, but mostly in regard to entertainment and entertainment figures. The principle advanced earlier has a variant: television may take time away from other activities that academically and intellectually would help the child, and television viewing will not compensate for the displaced activities because the curriculum of television and that of the schools overlap only slightly.

More recently, however, several writers have proposed that television has come to play a significant role in language acquisition (Hoff-Ginsberg & Shatz, 1982; Lemish & Rice, 1985; Rice, 1983). They challenge the view held by most developmental psychologists that television is relatively unimportant in this respect, and argue that television is important because of (a) the quantity and purposefulness of children's viewing, (b) the degree to which children's programs present child-pertinent dialogue, (c) the opportunity for children to learn the meaning of words from their use in program dialogue, and (d) the degree to which children borrow from television things to say (and do) in play. Such views do not at all contradict the impression that television by itself does not significantly boost vocabulary over what it would otherwise have been; they simply argue that television is now part of the process by which language is learned by children, which implies that the language employed by children and teenagers today is somewhat more grounded in popular entertainment than was the case several decades ago.

ADVERTISING

One category of knowledge, beliefs, and perceptions that has been the subject of extensive controversy in regard to the influence of television has been the influence of television advertising, and particularly advertising designed to influence young viewers. Four topics require coverage: (a) the evolution of the issue, (b) points of contention, (c) the empirical evidence, and (d) the policy options.

Evolution of the issue

Television advertising and its effects on young viewers were placed on the public agenda as an issue of controversy in the late 1960s and early 1970s by public interest groups. Particularly prominent were Action for Children's Television (ACT), a suburban Boston organization that has realized a national membership, and its founder, Peggy Charren, and a Midwestern advocate, Robert Choate. Previously, television advertising attracted almost no attention in connection with young viewers, although Saturday morning programming carried as many as 16 commercial minutes an hour as compared with an industry code limit of 9.5 minutes during primetime. As Les Brown recounts in *The New York Times Encyclopedia of Television* (1977):

> Children's groups did not become aroused, however, until the networks began to deal excessively—in their competitive zeal—with monsters, grotesque superheroes and gratuitous violence to win the attention of youngsters. Advertisers, by then, were making the most of the gullibility of children by pitching sugar-coated cereals, candy-coated vitamins and expensive toys (some retailing for as much as $50) in shrewdly made commercials that often verged on outright deception.
>
> Such patent abuse of the child market—while Saturday morning grew into one of television's largest profit centers—prompted the formation of watchdog groups such as Action for Children's Television, whose pleas for reforms could hardly go unheeded by Congress or the Federal Communications Commission. (p. 83)

ACT emphasized the clutter, the quantity, the general undesirability, or ensibly dubious practices and techniques, and the alleged inherent unfairness or deceptiveness of advertising. Many members of its audience were not old enough to understand the nature and purpose of advertising (readers will recall that print media generally warn adults with the label, "advertising" about paid-for content that might be mistaken for legitimate news). Choate emphasized the harmful behavior that advertising might encourage, particularly the consumption of highly-sugared and non-nutritious foods. Together, they achieved a reduction in advertising per hour that put children's programming on a par with primetime programming, ended advertising of drugs such as vitamins during children's pro-

gramming, put restraints on the use of television personalities and characters as advertising spokespeople, led to tougher codes for children's advertising, and brought at least some promises to reduce violence. Through appearances before Congressional committees and through the media, Choate can be fairly credited with pressuring the giant cereal makers into nutritionally upgrading their products.

Later shifts in advertising practices in response to such efforts include so-called "bumpers," or brief segments that are neither program nor commercial that appear before and after commercials, to help children better identify advertisements and better distinguish them from program content. Eventually, in the late 1970s, ACT was successful in placing the demand for federally-imposed restraints and possibly a ban on television advertising directed at children on the rule-making agenda of the Federal Communications Commission and the Federal Trade Commission, and more recently asked the Federal Communications Commission to bar programs with characters or devices that are marketed as toys on the grounds that such presentations are program-length commercials.

Points of contention

Four principal points of contention may be identified. The first is the implications of the nature of advertising for children's imperfect comprehension. The critics of advertising argue that commercials directed at children are unfair and deceptive because children do not fully understand the self-interest represented by commercial content. The supporters of advertising argue that children quickly perceive commercials as differing from program content even if they cannot define what advertising is, and that children cannot be harmed, even if unaware of advertising's self-interest, because they do not have disposable income to act on urges or desires created by television commercials.

The second point is the possible harm inflicted by acceptance of the message of television advertising. Critics argue that commercials promote unhealthy nutrition, misrepresent the performance of toys, and sometimes present examples of behavior that could be self-destructive to children (such as using chemically-dangerous household cleansers). Supporters argue that commercials may shape product choice but do not affect basic preferences, where parents and habit play the major roles; that puffery is inherent in advertising; and that the deviant response of a few children cannot be the criterion for television content aimed at adult consumers.

The third point is family management. Critics argue that advertising directed at children creates product desires with which parents find it hard to cope, desires for products that parents believe undesirable, and conflicts over what will and will not be bought. Supporters argue that neither any influence on a child's desires, nor any conflict between children and adults or parents attributable to television advertising directed at children, is substantial enough to merit either remedial action or the label "pathology."

The fourth point is the providing of television entertainment for children.

Critics argue that advertising-supported television entertainment for children emphasizes audience-attracting features at the expense of educational and cultural content, so that the income broadcasters receive from vending children's attentiveness to advertisers will be maximized, and that the Federal Communications Commission could require broadcasters, as a condition of license renewal, to present a minimum number of hours of children's programming without commercials. Supporters argue that the popularity of television entertainment designed for children among children themselves simply documents that it is what they want, that the power of the Federal Communications Commission to so specifically mandate programming is open to question, and that a Federal Communications Commission remedy is unlikely because the agency has never mandated programming on such a scale.

Empirical evidence

The most comprehensive examination of the evidence on the effects of television advertising on children is that performed by Adler and his many colleagues (1980). A task force effort evaluating dozens of studies with a bibliography of over 450 items, which was supported by the National Science Foundation to contribute to the resolution of the controversy, it can be taken as presenting a somewhat conservative perspective; its advisory committee contained a full spectrum of interested parties—public interest groups such as ACT, advertisers, and broadcasters.

Adler et al. concluded that the ability to distinguish commercials from programs and an understanding of the nature of advertising increase with age, as would be expected, but that a "substantial proportion of children, particularly those below age 7 or 8, do not draw upon the concept of selling intent in defining commercials, in distinguishing them from programs, or in explaining their purpose, suggesting little comprehension and/or low salience of persuasive intent as a critical feature of advertising." Disclaimers may be only cosmetic if wording is not simple and presentation is audiovisual instead of video only. The evaluation of a product by children will shift positively or negatively in accord with the viewer's evaluation of the endorser.

No associations have been found between exposure to television commercials and children's and teenagers' use of illicit drugs; however, commercials for proprietary drugs do appear to create favorable impressions of those drugs. From food product advertising, children learn and come to believe the claims made.

Although children come to understand the self-interest of advertising as they grow older, product desires and requests do not significantly decline with age. Children learn brand names, but repetitive exposure beyond the first or second time does not significantly increase such learning. Parents play only a small role in governing their children's television viewing or in discussing commercials with them; they become mediators only when product requests occur, and "disappointment, conflict, and anger" occur when requests are denied. On the whole, the investigators concluded

that television advertising directed at children is "at least moderately successful in creating positive attitudes toward a product and in stimulating requests for the product."

For example, in the typical experiment, children would be exposed to programs with and without commercials and then asked to make a choice of playing with the product or with friends or parents (Goldberg & Gorn, 1977); exposure to commercials markedly increased the proportion preferring the product. In the examination of Christmas toy choices by surveys of children (Robertson & Rossiter, 1977), preferences over the pre-Christmas advertising season shifted in favor of the advertised toys and cognitive defenses that earlier made some children comparatively immune to the appeals ceased to function as Christmas Day approached.

In another survey (Rossiter & Robertson, 1980), children's belief in the efficacy of proprietary drugs was correlated with exposure to television commercials for such drugs as well as with favorable experiences in using them. When parents are surveyed, they typically report extensive product requests from children for television-advertised items (Howard, Hulbert, & Lehman, 1973; Ward & Wackman, 1972).

Policy options

In 1977, when the Federal Trade Commission held joint hearings with the Federal Communications Commission on the possibility of rule-making on television advertising directed at children, they considered various proposals as alternatives to a complete ban on such advertising (Federal Trade Commission, 1978a, 1978b, 1978c). These included:

- A ban effective only when children below some specified age constituted more than "x" percent of the audience and adults constituted less than "y" percent.

- Elimination of advertising whose "dominant appeal" was to children below a specific age.

- Elimination of advertising for products appealing primarily to or purchased primarily for children below a specific age.

- Limitations more stringent than industry codes (which have a ceiling of 9.5 commercial minutes per hour) on number and frequency of advertisements directed at children below a specific age.

- Elimination of advertising for specific product classes, such as heavily-sugared foods, designed to appeal to children.

Among the more specific remedies considered was a ban (a) on all advertising of heavily-sugared foods when the audience was made up primarily of children under age 12, on the grounds that such foods place children's health at risk, and (b) on all advertising directed at children below age

eight in the audience, on the grounds that their lack of understanding of the nature of advertising makes it unfair and deceptive.

In the end, the Federal Trade Commission concluded that while the evidence indicated that television advertising directed at children involved some risks, represented a social ill, and was a legitimate cause for concern, no practical, effective remedies were open to federal policy-making. The practical barriers were (a) the difficulty of specifying what constitutes a child audience at risk (i.e., the ages, numbers or proportions at which a policy restraint would become effective), and (b) the unpredictability of broadcaster response (i.e., the cancellation of children's programming and the substitution of adult or teenage fare). The Federal Communications Commission gave no indication that it would ameliorate the second barrier by mandating programming for children, and in effect formally endorsed such a position when, after hearings on a possible rule making weekday entertainment programming of educational and cultural value for children a requirement, it declined to make such a ruling.

As a result, restraints on television advertising directed at children rest solely with the various codes formulated by the advertising and broadcasting businesses. These are not to be dismissed as hypocritical, for they are acknowledged as a means to prevent public displeasure and criticism and minimize the likelihood of federal intervention, nor should they be considered ineffective, since they hold individual advertisers to much stricter standards regarding the "what" and "how" of advertising than those to which advertisers would hold themselves. As for the content of these codes, the historical record makes it quite evident that as long as the principle and fact of being able to advertise to children are not threatened, the advertisers and broadcasters are willing to make numerous adjustments and reforms in response to public or public interest group displeasure. The reasons are quite simple: the effectiveness of commercials is not dependent on one or a few allegedly exploitative techniques (such as making toys seem huge or alive), and the elimination of one or a few product categories (such as children's vitamins) does not seriously affect the market for television advertising.

The option chosen has been industry self-regulation. As a result, controversies about children and television advertising directed at them are likely to continue because the circumstances which gave rise to them remain essentially unchanged, and the process described by the title of Turow's history of American network children's television, *Entertainment, Education, and the Hard Sell* (1981) has taken major escalation with entertainment calculatedly designed to foster the marketing of toys, and even the development of expensive toys that "behave" in response to signals emitted by children's television programming.

BEHAVIOR

All of the ways of responding to television so far obviously involve behavior of one kind or another—from acting as an attentive member of the audience to forming stereotypes. Here, we mean behavior in a more specialized sense—physical actions and sequences of physical action that arguably could be said to be influenced by television portrayals.

The most persistent of all questions regarding television and young viewers has concerned one such category—aggressive, antisocial, or delinquent behavior and their link, if any, with violent television entertainment. Attesting to this fact is the recent appearance of a review in *Psychological Bulletin* (Freedman, 1984) seeking to correct the many texts in introductory (e.g., Atkinson, Atkinson, & Hilgard, 1983; Darley, Glucksberg, Kamin, & Kinchla, 1981; Kagan & Havemann, 1980; McConnell, 1980; Mischel & Mischel, 1980; Smith, Sarason, & Sarason, 1982), social (e.g., Aronson, 1980; Jones, Hendrick, & Epstein, 1979; Myers, 1983; Oskamp, 1984; Penrod, 1983; Perlman & Cozby, 1983), and developmental psychology (e.g., Elkind & Weiner, 1978; Evans & McCandless, 1978; Hetherington & Parke, 1979; Kopp & Krakow, 1982; Liebert & Wicks-Nelson, 1979) that conclude that television violence facilitates such behavior. However, although the majority of research has concerned the influence of violent entertainment on aggressive, antisocial, or delinquent behavior, the various propositions supported apply much more widely—to positive and neutral forms of behavior (Comstock et al., 1978; Rushton, 1980) and even to such a seemingly disparate domain as the health practices of adults (Comstock, 1983a).

The behavioral influence of violent television entertainment has been an issue since the late 1950s when television began to shift toward violent serials as the staple of evening programming (Comstock, 1983b). Violent entertainment was the subject of a hearing before a House of Representatives committee as early as 1952, and has since been the subject of innumerable House and Senate hearings and two task force inquiries. The National Commission on the Causes and Prevention of Violence (1969) included among its many conclusions about the factors responsible for violent urban racial conflict the judgment, based on reviews of the available research, that television violence contributed to aggressive and antisocial behavior; the Surgeon General's Scientific Advisory Committee on Television and Social Behavior (1972) concluded, based largely on new research conducted on its behalf, that the aggressive and antisocial behavior of at least some young viewers was increased by television violence.

The first documentation that exposure to violent television portrayals could enhance subsequent aggressiveness appeared in 1963 in the prestigious *Journal of Abnormal and Social Psychology*. Albert Bandura, the Stanford psychologist, described an experiment in which nursery school children imitated aggressive acts they had just seen in a television portrayal; this occurred not only when the acts on television were performed by ordinarily clothed adults but when they were performed by someone

costumed like a character in a children's play or cartoon (Bandura, Ross, & Ross, 1963a).

Leonard Berkowitz, the University of Wisconsin social psychologist, reported an experiment in which college students expressed more hostility toward someone who had angered them after they had seen a film portrayal of a violent boxing match and perceived the victim's punishment as justified by his prior antisocial behavior (Berkowitz & Rawlings, 1963). Between 1963 and the report of the Surgeon General's Committee (1972), about 50 such experiments had been published with largely (if not wholly) supportive results. These experiments merited some skepticism regarding the applicability of their results to everyday life because of the inherent nature of laboratory experimentation: the viewing experience in the laboratory is brief and not continuous (if irregular and disrupted) as in the home setting; the experimental experience is itself extraordinary and may elicit atypical responses; the short time-span between exposure and measurement, together with the absence of distracting, intervening, and possibly counter-communicatory stimuli, may exaggerate effects; and the absence of the possibility of retaliation removes the most common factors inhibiting the kind of behavior under scrutiny. From the perspective of evidentiary interpretation, the primary contribution of the research conducted on behalf of the Surgeon General's Committee was data from surveys of everyday teenage television exposure and behavior not party to the same weaknesses. Today, evidence has been collected from many more laboratory-type experiments, some field experiments, and a number of surveys; those 1963 experiments now stand as the initiation of investigation varied in method, wide-ranging in focus (as we shall see), and complementary in regard to challenges as to their generalizability or having what psychologists call "external validity" (Cook & Campbell, 1979).

Cause and effect

What is one to conclude from these reviews? Do they have any claim to veracity?

First, laboratory-type experiments that record enhanced aggressive or antisocial behavior as a consequence of brief exposure to violent television portrayals demonstrate that television can affect such behavior in such settings; even skeptics about the everyday influence of television violence on aggressive and antisocial behavior make such an acknowledgment (Freedman, 1984). It is an axiom that when real-life circumstances resemble those of an experiment, the usual challenges to external validity do not apply and the results have a strong claim to generalizability. That is the case here with the many experiments demonstrating effects on children of nursery-school age, for these subjects lack the concept of experimentation that would lead them to behave atypically, and the experience of watching television and then playing (while behavior is measured) while under adult supervision is surely not unusual for a child. In addition, the many experiments are on the whole so consistent in outcome, so complementary and plausible in leading to explanations for the effects of televi-

sion violence on aggressive and antisocial behavior, and so logically linked to research on other kinds of media effects and on topics other than media effects (such as general learning principles, psychotherapy, and public information campaigns), that challenges to their external validity have become much reduced in force; that is, as a body of evidence, experimental findings are not static but increase in their claim to such validity with replication, explanation, and linkages to other literatures.

Second, the survey data of everyday television exposure and everyday aggressive and antisocial behavior among teenagers gave hitherto absent support to the experimental data: (a) exposure to television violence was positively correlated with such behavior, as would be necessary for a general, non-sporadic effect of the medium; (b) the correlation was not wholly attributable to some third variable associated with both exposure to violence and such behavior, which precluded the dismissal of television as causally implicated; and (c) in particular, the preference for violent entertainment among antisocial and aggressive youths did not explain the correlation, because exposure to television violence was much more strongly correlated with such behavior than was an expressed preference for such entertainment.

The pattern of results for these early surveys (Chaffee, 1972; McLeod, Atkin, & Chaffee, 1972a, 1972b; McIntyre & Teevan, 1972; Lefkowitz, Eron, Walder, & Huesmann, 1972) has, on the whole, persisted over numerous additional surveys. Some findings certainly are null, but quantitative aggregation of findings by meta-analytic techniques (Glass, 1978; Glass et al., 1981; Hunter, Schmidt, & Jackson, 1982; Rosenthal, 1984) provides documentation that a majority of correlations are positive (Andison, 1977) and that the average effect size is decidedly positive (Hearold, 1976).

The least ambiguous documentation of a positive association between television exposure and aggressive behavior is the panel study conducted by Milavsky, Kessler, Stipp, and Rubens (1982a, 1982b). Whole multiple measurements of the same cadre of elementary school boys and girls produce a total of 12 separate statistically significant positive correlations. In addition to implying a positive central tendency for the real-life relationship between the exposure to television violence and aggressive and antisocial behavior, the varied surveys report (a) over-time correlations (that is, between violence-viewing at one point in time and behavior at a later point in time) that are as large or larger than the synchronous correlations (the most common instance when both measures are obtained at the same point in time), a fact encouraging causal attribution because it suggests the time ordering of events required for causation (Eron, Walder, & Lefkowitz, 1971; Huesmann, Lagerspetz, & Eron, 1984); (b) correlations between seriously harmful antisocial behavior and exposure to television violence (Belson, 1978; Cook, Kendzierski, & Thomas, 1983) as well as between interpersonal aggressiveness and such exposure, although certainly the pattern on the whole is stronger for the latter than for the former; and (c) positive correlations across cultures (Huesmann & Eron, 1986; Wiegman, Kuttschreuter, & Baarda, 1986). Not all in-

vestigators report or interpret survey data as documenting a positive correlation between the media exposure and behavior at issue (Milavsky et al., 1982a, 1982b; Wiegman et al., 1986). In one such prominent instance—that of the NBC-sponsored panel survey conducted by Milavsky and colleagues—a number of critics have argued that the data were interpreted insensitively and erroneously (Comstock, 1986; Cook et al., 1983; McGuire, 1986). More important to the interpretation than the strengths or the weaknesses of individual studies are three concepts: (a) sampling variability, (b) implied central tendency, and (c) underestimation as a function of measurement.

Sampling variability refers to the fact that any measure obtained from a survey, including correlations between variables, will vary with each sample drawn; measures successively obtained will cluster about a mean that is the best possible estimate of the population measure.

Implied central tendency refers to the population measures implied by successively drawn samples or by a number of samples representing independent (but comparable as opposed to distinctly different) populations.

Underestimation as a function of measurement refers to the ceiling imposed on the size of estimates of relationships by techniques of measurement and characteristics of the population measured.

In the present case, most of the correlations are positive, with a positive mean. The implied central tendency is positive. For it to be null, the correlations would have to distribute themselves equally between positive and negative outcomes. The explanation for some null findings is simply that the discovered associations are modest or small in magnitude, so that sampling variability would lead to some falling within the null range.

Nevertheless, there are two reasons for suspecting that these figures underestimate the real-life association. One is that the measures of exposure and behavior are imperfect or, in jargon, have a degree of unreliability; to the extent that correlated measures are imperfect or unreliable, the correlation observed will be diminished. The other reason is that television exposure is so common that any comparison involving frequency of exposure is limited to the high and moderate, and such a truncated distribution will lead to a correlation lowe. than would occur were low- or zero-scorers present.

Third, it is widely acknowledged (Comstock, 1983; Cook et al., 1983; Hearold, 1986) that the several field experiments as a body of evidence are uninterpretable. Some investigators report effects, other do not, and adjudication among them is problematic; the average effect size calculated by meta-analytic techniques is close to zero. Two problems in particular seem to be responsible: (a) the difficulty, outside of the laboratory, of achieving the comparability of treatment and control groups made possible by random assignment of subjects, and (b) the difficulty of validly measuring meaningful responses to a television or film stimulus outside

the laboratory. In any case, results do not point clearly in one or another direction, although partisans can find supportive studies. It is an error to treat these field experiments as additional tests of a real-life relationship that can be crudely averaged with the outcomes of surveys undertaken in one analysis (Freedman, 1984), because their mixed outcomes appear to be attributable to the method itself.

In sum, laboratory-type experiments document causation in the laboratory context, and surveys extend external validity to these results by recording positive correlations between television exposure and behavior not readily explainable by factors other than media influence. Field experiments, if taken as the best test of the influence of television, would lead to a conclusion of null influence, but such an assumption is not justified (a) because of the high likelihood that the mixed results represent unresolved methodological problems, and (b) because of the mutually supporting evidence from laboratory-type experiments and from surveys, which unlike the field experiments do not appear to suffer from fundamental methodological problems.

Theoretical explanations

The laboratory-type experiments not only constitute a major component of the evidence favoring causation, but also a catalogue of factors and several complementary explanations for the influence of television on behavior. One of the major merits of experimentation is its capacity to examine specific issues and factors too intertwined with others for investigation under everyday circumstances; in this instance, particular aspects of television portrayals, viewing circumstances, or viewer attributes can be taken as a treatment, and when they have a role in any television influence, assessed by comparison with a neutral group. Among the factors that experiments identify as heightening the likelihood of television influence are (Comstock, 1986):

- Reward or lack of punishment for the portrayed perpetrator of violence (Bandura, 1965; Bandura, Ross, & Ross, 1963b; Rosekrans & Hartup, 1967).

- Portrayal of the violence as justified (Berkowitz & Rawlings, 1963; Meyer, 1972).

- Association with violence of cues in the portrayal that resemble those likely to be encountered in real life, such as a victim in the portrayal with the same name or characteristics as someone towards whom the viewer holds animosity (Berkowitz & Geen, 1966, 1967; Donnerstein & Berkowitz, 1981; Geen & Berkowitz, 1967).

- Portrayal of the perpetrator of violence as similar to the viewer (Rosekrans, 1967; Lieberman Research, 1975).

- Depiction of behavior ambiguous to the viewer solely on the basis of the behavior itself as motivated by the desire to inflict harm or injury—in effect, the perception of behavior that might be motivated by malicious intent, such as perceiving a football game as a grudge match with injury to the opponent as important as scoring (Berkowitz & Alioto, 1973; Geen & Stonner, 1972).

- Violence portrayed so that its consequences do not stir distaste or arouse inhibitions, such as violence without pain, suffering, or prolonged hurt on the part of the victim, sorrow among friends and lovers, or remorse by the perpetrator (Berkowitz & Rawlings, 1963).

- Violence portrayed as real events rather than events concocted for a fictional film (Feshbach, 1972).

- Portrayed violence that is not the subject of critical or disparaging commentary (Lefcourt, Barnes, Parke, & Schwartz, 1966).

- Portrayals of violence whose commission particularly pleases the viewer (Ekman et al., 1972; Slife & Rychiak, 1982).

- Portrayals in which violence is not interrupted by violence in a light or humorous vein (Lieberman Research, 1975).

- Portrayed abuse that includes physical violence and aggression instead of or in addition to verbal abuse (Lieberman Research, 1975).

- Physical aggression against a female by a male engaged in sexual conquest when a likely real-life target is a similar female (Donnerstein & Barrett, 1978; Donnerstein & Hallam, 1978).

- Physical aggression against a female by a male engaged in sexual conquest in which the victim is portrayed as eventually relishing the assault and a likely real-life target is a similar female (Donnerstein & Berkowitz, 1981).

- Portrayals, violent or otherwise, that leave the viewer in a state of unresolved excitement (Zillmann, 1971; Zillmann, Johnson, & Hanrahan, 1973).

- Viewers who are in a state of anger or provocation before seeing a violent portrayal (Berkowitz & Geen, 1966; Donnerstein & Berkowitz, 1981; Geen, 1968).

- Viewers who are in a state of frustration after viewing a violent portrayal (Geen, 1968; Geen & Berkowitz, 1967; Worchel, Hardy, & Hurley, 1976).

Belson (1978) scored the programs viewed by his teenage survey respondents for type of violence and concluded that stimulus factors most likely to contribute to viewer aggressiveness and antisocial behavior were:

- Protagonists displaying great strength and power who defeat essentially weak victims;
- Violence with numerous victims, such as mass killings;
- Violence that erupts among friends, allies, or gang members;
- Violence that is extreme compared to the events leading up to it;
- "Violence of a nasty kind [that] appears to be sanctioned by showing it being done in a good cause with seeming legality" (p. 18);
- Dramas that encourage identification with the aggressor; and
- Violence not easily dismissable as fiction because of its great realism.

Survey data cannot identify such factors as precisely as experimentation in the laboratory because the high intercorrelation of such stimuli reduces the confidence with which each can be construed to have an independent effect, and because survey data are problematic for causal inference in any case. Nevertheless, it is striking that these findings are so in accord with the four dimensions to which American laboratory experiments lead: (a) **efficacy** (reward or lack of punishment; an eventually grateful victim); (b) **normativeness** (justified, consequenceless, or intentionally hurtful physical violence); (c) **pertinence** (commonality of cues between stimuli and real life such as weapons, place, or target attributes; protagonist similarity to the viewer; absence of humorous violence); and (d) **susceptibility** (pleasure, anger, frustration, absence of criticism). Whatever heightens these four conditions (the first three of which are beliefs or perceptions at least somewhat under stimulus influence, and the fourth of which is the internal state of the viewer) in response to a portrayal, or in real life in regard to a way of behaving, also increases the likelihood that this experience will contribute to similar behavior in the future.

These four dimensions derive from three theories, applicable to behavior in general, that have some relevance to television. Social learning theory (Bandura, 1971, 1973, 1978) holds that the capability of performing an act is enhanced by (and if the act is wholly unfamiliar may be attributed to observing) its performance by others. The observed setting and outcome are said to affect the perceived pertinence and efficacy of the act. Vicarious experience, such as that provided by television, as well as direct experience, may be the source of observational learning.

Disinhibition and cue theory (Berkowitz, 1962, 1964, 1973) holds that television and film portrayals may (a) raise or lower inhibition in regard to an internal state, such as anger, and (b) affect the response an external

cue will elicit. In other words, television may teach that various modes of behavior are more or less acceptable, and the type of behavior most appropriate when certain cues—a weapon, a person with certain characteristics, a set of circumstances—are present.

Arousal theory (Tannenbaum & Zillmann, 1975; Zillmann, 1971, 1979, 1984) holds that the excitation created by an experience may transfer to subsequent behavior, thereby intensifying it, and that the positive or negative valence of the experience may have some influence on the type of behavior engaged in; television is construed along with real life events as able to create such excitation.

More recently, social learning has been elaborated as social-cognitive theory (Bandura, 1986) and disinhibition and cue as cognitive neoassociation (Berkowitz (1984); the revisions attempt to encompass lengthier and more varied sequences of behavior than the single acts to which the original theories seemed to be addressed, and in effect postulate that their earlier formulations sum to expectations and scenarios reflecting the first three dimensions. The view that one way in which television affects behavior is through scenarios, or behavioral sequences followed when circumstances present cues leading to their retrieval, receives overlooked support from the Belson survey data. Exposure to violent programs was not correlated with attitudes favorable to violence, with high regard for its use, or with callousness. Such exposure was also unassociated with being irritating, annoying, or argumentative, and with committing violence against other boys. These findings suggest that consciously articulatable beliefs, consistent states bordering on traits, or some form of contagion are not means by which television influences behavior; instead, television's influence lies in behavioral sequences sporadically retrieved in response to environmental cues. Taken together, three theories hold that television may heighten or lower the likelihood of aggressive or antisocial behavior, depending on what television portrays and the circumstances in which the viewer finds himself or herself. (See further Berkowitz, 1986; Geen & Thomas, 1986; Huesmann, 1986; Malamuth & Briere, 1986; and Rule & Ferguson, 1986.)

Finally, one must consider the role of frustration. It is frequently argued that because many of the laboratory-type experiments demonstrating causation involve the provocation or frustration of subjects prior to the manipulation, the aggressive or antisocial behavior is dependent on or in some way outside the ordinary boundaries of human behavior. Hearold's (1986) meta-analysis records the largest effect size for instances in which treatment subjects only are frustrated; the next largest when treatment and control subjects are both frustrated; and, a smaller but still decidedly positive effect size, when neither group is frustrated. Frustration is thus a facilitating but not a necessary condition; the media experience adds to what frustration accomplishes and can have an effect in its absence. The frustration or provocation experimentally induced is also of the most ordinary variety—an insult, a sharp remark, a criticism, denial of access to something pleasurable (such as a preferred toy); such experiences can be expected to occur regularly among viewers (and nonviewers) of television.

The behavioral principles described in regard to the influence of television violence apply widely to other types of behavior. They have application to socialization generally (Bandura, 1986) and psychotherapy (Bandura & Menlove, 1968; Wilson & O' Leary, 1980), and represent the foundations of the health belief model (Becker, 1974; Becker & Maiman, 1975) which is the basis of many programs aimed at changing the health-related practices of persons of all ages, including government-sponsored multimillion dollar campaigns using the mass media (Comstock, 1983a; Farquhar et al., 1977). More specifically, a number of laboratory experiments examine the effects of television portrayals that cannot be said to contain violent, aggressive, or antisocial content. These portrayals present behavior that most or at least many would agree merits the label "prosocial," such as altruism; acceptance of others; social interaction; the engaging in of some non-antisocial activity; behavior in accord with safety, health, or conservation; book-buying; obeying norms; respecting the law; cooperation; and the like. The results have been analogous to those for violent portrayals. In fact, Hearold's (1986) meta-analysis records an effect size for prosocial portrayals and prosocial behavior that is twice as large as that for antisocial portrayals and antisocial behavior—an outcome probably attributable to the fact that most of the treatments in the prosocial instances were designed to influence, whereas many more of those in the antisocial instances were drawn from entertainment with no such intention, and to the fact that in the prosocial instances, the measured behavior much more often was similar or identical to what had been portrayed.

Hearold also recorded an intriguing symmetry between the effects of anti- and prosocial portrayals; the former were associated with heightened antisocial and diminished prosocial behavior, while the latter were associated with diminished antisocial and heightened prosocial behavior. This finding implies that not one but two social costs result from violent children's programming—increases in aggressive and antisocial behavior, and decreases in constructive behavior that could be, but is not, facilitated by television. In any case, these are general, not violence-specific principles of media influence.

CONCLUSION

The empirical investigation of the relationships between children and teenagers, and television over the past decade and a half, when added to research already done, has created an impressively large if varied body of evidence, enlarged upon issues already investigated, and introduced data on new topics. The influence of television on behavior, where the topic of television violence and aggressive and antisocial behavior has received the most attention, exemplifies the confirmation and elaboration of earlier findings. The cognitive encoding of television represents a quite new area. The effects of television advertising occupies a middle ground; unexamined before the early 1970s, no considerable literature exists.

The empirical record variously supports, qualifies, calls into question, and has little to say about the opinions of the experts. The negative correlations between television viewing and scholastic achievement in arithmetic, reading, and writing certainly are consistent with the view that television has reduced reading ability and interfered with achievement by suppressing attention span and creativity. However, some and conceivably most or all of these relationships are certainly explained by the greater attention of less able or less disciplined pupils to television, leaving any causal contribution minor at best. If the topics covered under the label "knowledge, beliefs, and perceptions" are defined as "world knowledge," then the top rating assigned by the experts perhaps has some claim to validity. However, the measured effects are hardly large or sweeping, and when combined with the evidence that involvement in television is low and active cognitive processing of what is viewed is not pronounced, then it seems likely that much that would seem to be disseminated in fact is not absorbed by its young audience.

Schramm, Lyle, and Parker (1961), in evaluating the effects of the introduction of television in the United States on young viewers, concluded that they were more knowledgeable and better informed than in decades past, but were skeptical that television independently made much of a contribution; their specific finding that most of the increased vocabulary and factual knowledge associated with television viewing represented people and things prominent in the media, entertainment, and advertising, support their observation. Thus, television may have become for the experts a symbol (of a variety of factors) that has expanded the range and diversity of information among children and teenagers, while itself not having the impressive effect attributed to it.

If the evidence on behalf of the effectiveness of television advertising on young viewers is taken as implying an increase in buying behavior or in the desire for immediate gratification, then the evidence can be said to support the experts. However, none of the data relevant to the opinions of the experts represents changes between pre- and post-television eras, but only circumstances within the television era. Plausible though a conclusion in favor of the experts might seem, it does require assumptions about historical changes. The same must be said about most of the

asserted effects; even evidence of a contemporary contribution by television viewing, in fact sometimes scant or absent, would not document historical shifts. The evidence on television violence and aggressive and antisocial behavior only supports the view that such behavior is to some degree a function of current television viewing; inferences about overall increases in comparison with pre-television decades would require the plausible but uncertain assumption that the medium has had an additive influence and has not been merely substitutive for other influences now less strong. On the whole, then, the research to date, although highly informative in many respects, is only moderately informative about the accuracy of the experts.

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